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Dr. Parsons's Report to the Local Government Board on the recent Prevalence of "Fever" in the Bedlingtonshire Urban Sanitary District, and on the general Sanitary Condition of that District.

George Buchanan,
Medical Department,
January 21st, 1890.

General description.

The Bedlingtonshire urban district comprises the portion of the Northumberland coal field lying between the rivers Wansbeck on the north and Blyth on the south. On the east it is bounded by the North Sea, and on the west it adjoins the municipal borough of Morpeth, and the parish of Stannington in the Castle Ward Union. It has an area of 8,436 acres. The surface forms a plain sloping eastward to the sea; the rivers occupy narrow steep valleys, and are tidal in the lower part of their course. The geological structure consists of a bed of boulder clay overlying the coal measures; the harder sandstones of the older rock here and there protruding through the clay and appearing on the surface. Within the district are the town of Bedlington, and a number of outlying hamlets separated by spaces of open country. The inhabitants, with the exception of those engaged in agriculture and the necessary trades and professions, are exclusively employed in coal mining: they numbered 14,510 in 1881, but their number fluctuates greatly from year to year, according as prosperity or depression prevails in the coal trade: at the present time the population is estimated at 16,000.

Bedlington town.

The town of Bedlington consists of a single broad street running east and west, with some shorter streets and yards leading out of it on the north side. In some of these the houses are closely crowded together with very scanty back space, and with little facility for the circulation of air around them to carry away the effluvia from the unpaved and filthy yard surfaces, untrapped drain openings, and huge privy middens, which exist too commonly in their neighbourhood. The houses in Bedlington belong to various owners; many of them are old; and subletting or letting in flats is frequent.

Colliery hamlets.

In the outlying hamlets the houses as a rule belong to the colliery proprietors, the miners living in them rent free. The colliery houses are built in long rows, each row having at the back a broad common courtyard, at the farther side of which the privies and ashpits are placed. The colliery houses usually contain, on the ground floor, two good sized rooms—each, say, 16 feet square—one of which is occupied by night as well as by day, and two bedrooms above, of similar area, but of less height. The pitmen's families, however, are usually large, and it is not uncommon for an unmarried brother

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or other relative to lodge with them, and the large number of persons thus residing under one roof is favourable to the spread of infectious disease, although from the point of view of cubic space per head it may be difficult to say that there is overcrowding.

For a further description of the district I may refer to my previous report issued in 1880—a description which I regret to find applies only too well at the present time.

Sanitary circumstances.

The district was also inspected by Dr. Page for the "Sanitary Survey" in 1885. The chief improvement made since then has been the construction or reconstruction of sewers. At the time of my visit in 1879 the sewers, which had been laid piecemeal by the Local Board or by owners of property, consisted only of common field pipes, 12 inches or less in diameter, and were frequently getting blocked. Most of these have now been taken up and relaid with glazed socket pipes, though in one instance, viz., Glebe Row, the old tile pipes were relaid by order of the Local Board. Several new sewers have been constructed, and others are in progress. The sewers are in a number of different sections, discharging into the sea, into the tidal estuaries of the Wansbeck and Blyth, and into a brook, the Sleekburn, which joins the latter stream. Except the Glebe Row sewer, which can be flushed from the reservoir, the sewers have no special means of flushing. The means of ventilation consist of manholes, of a few shafts of 6-inch iron pipe, about 23 in all, and of untrapped gullies by the road-sides. Nuisances from escape of sewer effluvia in dangerous situations are frequent.

Sewers and drains;

Few houses have drains inside, but drain openings, either untrapped or with only loose defective iron traps, frequently exist in close proximity to the houses. The present Surveyor, however, requires the use of trapped gullies in new work. The house drains have as a rule no special means of ventilation.

The rows of colliery houses are drained by open channels of tiles or concrete, running in the common backyard the whole length of the row. These channels are considered easier to keep free than a covered drain (or rather, if blocked, they can be more readily cleared), but they do not answer well in frosty weather, and are often in an uncleanly condition. They discharge into large untrapped catchpit-inlets at the ends of the rows; these catchpits are considered necessary in order to intercept the sediment, consisting chiefly of ashes and small coal, which finds its way into the channels from the unpaved surfaces of the yards.

privies;

Midden privies are in general use, and the ashpits are open and very large. The large size is considered necessary on account of the great quantity of ashes produced, where, as is the custom here, coal is supplied gratuitously, and fires are kept constantly burning. In the colliery rows each house has its own privy, one ashpit standing between two privies, but in Bedlington it is not unfrequent for several houses to have privies in common. Some middens and privies were seen which were dilapidated and leaky. Certain improvements have been made in the construction of some of the privies, viz., reducing the depth of the ashpit, raising the level of the privy floor and seat, and turning the privy seat so that its back and not its side shall be next the ashpit, and shall be freely open on that side in order to facilitate the covering of the excrement with ashes. The ashpits, however, are not covered in, and their size has not been reduced, partly on the ground already mentioned, partly because it is held that a certain size, not less than 4 feet square, is necessary, in order to allow a man to work inside the pit. The objection raised to constructing the privy in such a way that the contents can be got out from the outside with a long-handled tool is that this mode of working takes longer, so that where such large masses of material have to be dealt with, its adoption, it is considered, would inordinately increase the cost of removal.*

removal of refuse;

The removal of ashes and excrement, which at the time of my previous visit was performed at the colliery rows at the expense of the proprietors, and elsewhere by farmers at the expense of the occupiers, has for four years been done by contractors under the Local Board. There are eight contracts, and the total yearly cost is over 400*l.* Each ashpit is emptied as required, not in rotation or at any specified time. I cannot say that the work appeared

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* In the adjoining Cowpen district these objections have not been held to have sufficient weight to prevent the ashpits in many instances being considerably reduced in size.

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to me at my present visit any better done than it was before. Overfull ashpits were commonly met with in various parts of the district, and complaints were made that the ashpits were not thoroughly emptied, but that the wettest and most offensive stuff at the bottom was allowed to remain. The contractors are only expected to get out the contents of those ashpits alongside of which a cart can be brought. In other places, as where the ashpit is in a yard approached by a narrow entry, it is deemed to be the occupier's duty to get out the contents, and wheel them into the street to be fetched away by the contractor's cart.* This practice is objectionable as imposing an offensive and dangerous duty upon a number of individuals, some of whom will probably be susceptible to injurious effects, instead of its being undertaken by persons who, being inured to it, are not likely to suffer. Another objection is that the tenant gets out the stuff at such time as may suit him, and it sometimes remains many hours in the street awaiting removal by the contractor.

Want of surface cleanliness.

The surface of common yards and back streets is, with rare exceptions, unpaved, and is commonly in a filthy state, being littered with refuse through the carelessness of the tenants, and worn into holes full of mud and foul water,—a state of things which may be looked upon as constituting a nuisance dangerous to health. The Local Board, however, have not looked upon procedure under the nuisance removal sections of the Public Health Act as applicable in such cases, and have hesitated to put in force their powers under the 150th section of the Public Health Act to cause these back streets to be put in repair, under the belief that if they did so they would have afterwards to take them over as streets repairable at the public cost.

The interiors of many houses, especially in the poor parts of Bedlington, were found to be in a filthy state, and to need cleansing and limewashing.

Water supply.

The whole of the Bedlingtonshire district is supplied with water from the waterworks of the Local Board. The water is pumped from the river Blyth into a reservoir, filtered, and distributed by gravitation to all parts of the district; it is laid on to stand-posts from which it may be fetched by all comers free of charge. There are few houses above the intake: some seven houses at Stannington Bridge, 3 miles above the intake, were spoken of as draining into the Blyth, but on examination I found that, although the ends of pipes were to be seen opening towards the river, yet there were no signs that any liquid ever flowed from them. The pressure is nominally constant, but is sometimes little or none in the highest parts of Bedlington. The provision for connecting fire-hose consists partly of stand-posts, partly of ball hydrants, of which there are 36 in all. It is stated that the ball hydrants are all placed in the main streets, and not in positions where they would be liable to the entrance of foul matters. The water is spoken of as being sometimes milky from contained air; it is occasionally turbid after rain, and at Cambois, in the lowest branches of the system, a rusty sediment collects in the pipes and discolours the water.

Vital statistics.

The table below shows the average annual rates of births and deaths, and of deaths from the chief "Zymotic" diseases, and the proportion of children born who died under 1 year old in the 10 years 1879–88 in the Bedlingtonshire urban district as compared with the whole kingdom, the population of the Bedlingtonshire district being estimated at 16,000:—

———	Births.	Deaths.		
		All Ages: Total.	From chief Zymotic Diseases.	Under 1 year old.
Bedlingtonshire	40·3	18·4	3·3	140
England and Wales	33·0	19·4	2·5	141
	Per 1,000 inhabitants.			Per 1,000 births.

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* There is no clause to this effect in the scavengers' contracts, but I am informed that there is a tacit understanding on this point between them and the Local Board.

The deaths under the heading of "chief zymotic diseases" have been as follows:—

YEAR.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Fever.			Diarrhœa.
						Typhus.	Enteric.	Other and Doubtful.	
1879 - - -	—	—	89	—	13	—	2	2	8
1880 - - -	—	11	31	—	14	—	6	5	19
1881 - - -	21	—	1	—	1	—	7	2	5
1882 - - -	—	—	—	1	6	—	3	5	10
1883 - - -	—	—	9	1	10	—	13	5	8
1884 - - -	—	3	6	—	6	—	15	1	22
1885 - - -	—	1	—	—	6	—	10	3	10
1886 - - -	—	—	3	1	1	—	2	3	26
1887 - - -	—	41	3	2	—	1	1	4	19
1888 - - -	—	1	9	—	7	—	1	5	8
Average annual rates per 10,000 population. Bedlingtonshire.	1·3	3·6	9·4	0·3	4·0		6·0		8·5
England and Wales.	0·5	4·2	4·2	1·5	4·5		2·6		6·4

It will be seen that in the Bedlingtonshire district the mortality from measles and whooping-cough has been slightly, and that from diphtheria greatly, below the average of the whole kingdom. The rates of mortality from small-pox and scarlet fever have been above the average owing to epidemics of the former disease in 1881, and of the latter in 1879–80. The mortality from "fever," which has been chiefly of the enteric kind, and from diarrhœa has also been high. It will be noticed that the diseases which spread most directly by infection from person to person, as small-pox, measles, scarlet fever, and whooping-cough, have tended to prevail in epidemics separated by intervals of little or no mortality, while those diseases which, like enteric fever and diarrhœal disease, depend especially upon local conditions have been more or less persistently prevalent.

Recent prevalence of "fever."

The Bedlingtonshire district appears to have been comparatively free from fever during the first half-year of 1889, only two deaths from fever of doubtful kinds having been registered. In the third quarter of 1889 six deaths from "fever" were registered as having occurred in the Bedlingtonshire urban district, all from enteric (typhoid) fever, and this prevalence formed the ground of the present inquiry.

During the month of October two deaths were registered from typhus fever.

The circumstances of the fever prevalence did not lend themselves to very exact investigation, owing to the difficulty of getting dates and other material information. Some of the families in which fever had occurred had removed; in few had any recollection of the date of the illness been preserved, and as most of the patients had been attended by medical men in the course of their colliery practice, no permanent record of them had been kept.

Enteric fever in Bedlington;

By general repute the earliest case of enteric fever in Bedlington this year was that of a man named Jenkinson, in Chapel Row, a narrow filthy street near the east end of the town. The house in which he resided is an old eight-roomed house, "made down" into a number of tenements. There are doors front and back, and there are four rooms on each floor. The bottom rooms form two two-roomed tenements, one on each side, which have windows front and back, and doors communicating with the front and back entrances. The rooms on the floor above have no through ventilation; those in front being approached by a different staircase from those at the back. At the back of the house is a narrow confined yard, entered by a covered passage. This yard, though paved, is in a very dirty condition, owing no doubt in part to there being no water at hand to cleanse it with: the nearest water source is a standpost in the main street, more than 80 yards distant. The interiors of some of the tenements also were very dirty. In the yard is a large open privy midden measuring 8 feet by 6 feet 6 inches, and holding about seven cartloads of refuse. The yard gully is trapped, but there was at the time when the fever occurred a very offensive untrapped gully in the street in front of the house. At the date of my visit this had been covered up with ashes.

The first patient, Jenkinson, worked in the Sleekburn Colliery and had not been away from Bedlingtonshire for some time before his illness. He attributed his illness to his having shortly before—the statements of himself and his wife differed as to whether it was three or four days or a fortnight before—emptied the privy midden and wheeled the contents into the street for removal. This operation, as before mentioned, is considered to be the duty of the tenant in places where a cart cannot be brought up alongside the ashpit. It has to be done at intervals of about three months. The man was doing it again at the time of my visit, and, as may be supposed, it was very offensive.

The exact date of Jenkinson's illness could not be ascertained, but it was in the earlier part of 1889, before June. It did not come to the knowledge of the Medical Officer of Health until some months afterwards, when he was inquiring about a subsequent case. At the time of Jenkinson's illness the house in which he lived was occupied by five families, numbering 25 inmates, 10 of whom were adults and 15 children; three of these families were subsequently invaded by enteric fever, and there were in them 11 cases, all in children. The only family which escaped consisted of man, wife, and one child, and occupied the top front room corresponding to Jenkinson's. All the families made use of the same privy accommodation. At the time of my visit new tenants had come into one of the tenements in which fever had existed. The rooms had in the interval been fumigated with sulphur, but no efficient cleansing had been performed: the wall paper had not been removed, nor the walls or ceilings limewashed.

Following these cases, which were all considered by Dr. Maclaren of Bedlington to be enteric fever, there were a number of others in the cluster of confined and filthy courts in the same neighbourhood, and the disease still existed there at the time of my visit in December. Moreover, the infection was carried from Jenkinson's to Scotland Gate, where also enteric fever spread and caused several deaths.

On the other side of Chapel Row there were cases in two adjacent houses. In the yard behind these there is between the back doors of the two houses an offensive untrapped drain inlet, and there is also a very large privy midden about 5 feet from the back doors. The first case in these houses was a child belonging to one of the families over the way, who was brought there ill. An elderly woman in the next house took enteric fever and died September 22nd. In the house in which the first case occurred the two upstair rooms are let separately to a family, consisting of the parents, five children, and a relative, who lodges with them. All of these except the youngest baby suffered from enteric fever, and two of the children were still ill at the time of my visit. The back window of one of these upstair rooms overlooks the privy midden, the smell from which is much complained of. Dr. Maclaren says that Chapel Row is never free from illness.

There were cases of enteric fever in two houses in Walker Terrace, the next lane parallel with Chapel Row, and in which similar unsanitary conditions prevail. In one of these houses two deaths from enteric fever occurred in September. The house consists of a single room of about 1,400 cubic feet capacity, in which reside a man, his wife, and five children (formerly seven). The room is partly underground; the walls are damp, and the ceiling dilapidated. The man carries on the business of rag and bone collector, and the house was found in a filthy state.

In the next lane, Coach Road, parallel with and close to Walker Terrace, cases of enteric fever, some of them being recent, were heard of in eight families, the disease in several of these being concurrent with scarlet fever. The houses on the north-west side of Coach Road have at the back very narrow common yards, shut in by high buildings. Within these narrow confined spaces are large open privy middens, one of which is built against one house, is only 3 feet from the pantry window of a second house, and only 3 feet 6 inches from the back door of a third. There are, or were, also in the backyards untrapped offensive drain openings, but some of these have lately been replaced by trapped gullies. The houses on the south-east side of Coach Road are built on the abrupt edge of a valley. Some of these houses have no drains, solid and liquid refuse being thrown down the steep slope, where the accumulation creates a nuisance. At other houses untrapped drains and foul privies exist close to the back doors.

at Scotland Gate;

Scotland Gate is a village 1½ miles north of Bedlington, consisting of pitmen's houses in long rows fairly open at the back, but with dirty unpaved yards and other uncleanly surroundings. Here the first case of enteric fever this year was a girl named Jenkinson, sister to the man who was the first to have fever in Chapel Row. She had been at Chapel Row for two or three weeks nursing her brother, and either came home ill, or was taken ill soon after her return—(exact information could not be obtained). The house in which she lived has no through ventilation, except a small lattice, and has only one downstairs room and one bedroom, for the father, mother, and then nine (now five) children. The drain, which is outside but near the door, is stopped up, and an offensive smell from it is complained of. The privy midden is open and dilapidated, and is so placed that everyone going to the house has to pass close to it. In this family there occurred nine cases of fever, only the mother and one child escaping.

A girl named McC. died at Scotland Gate of enteric fever on August 6th. One night, about a fortnight before she was taken ill, being unable to obtain admission to her own home, she had taken refuge at the Jenkinsons' above mentioned, some of whom were then ill with fever, and had passed the night there. Her brother, residing in a different part of Scotland Gate, in a one-roomed upstair tenement, also suffered from enteric fever. One night, about three weeks before the commencement of his illness, his sister had been to his room, and had slept there with his wife, while he was working at night in the colliery. This was just at the commencement of the sister's illness; she was much troubled with diarrhœa that night, and doubtless left behind, either in the room or in the privy, the infection which caused the man's illness, although he did not himself see her. The wife, who was most exposed to infection, escaped; she was not known to have been protected by a previous attack of enteric fever, but had had "worm fever" in infancy.

A death from enteric fever took place on September 19th in a house close to the Jenkinsons, but the family had left before my visit, and further information was not obtained. The common yard behind the row in which the house stands is unpaved and badly drained, there being an untrapped drain inlet 10 feet from the house. The ashpits and privies are badly constructed, and are 15 feet only from the houses. The owner is under notice to reconstruct both privies and drains. Another fatal case subsequently occurred at a public-house, in the immediate neighbourhood of which were nuisances from defective drains and pools of stagnant water. Another woman at Scotland Gate, who had helped to nurse the fever patients, and a man living at Guide Post, who used to visit relatives near the infected houses at Scotland Gate, also suffered from enteric fever, but recovered.

Thus two serious local outbreaks of enteric fever, one in Bedlington and one at Scotland Gate, appear to have had their origin from the neglected case—neglected, I mean, as far as measures of prevention are concerned—of the man Jenkinson of Chapel Row; the disease being partly conveyed by personal intercourse, partly propagated by infected effluvia from foul privies and defective drains. Jenkinson tells me that he would have been willing to have gone into the fever hospital at the time of his illness had the offer been made to him, but this was not done, owing to the case not having been heard of in time. It is not improbable that by timely isolation of the first case, by thorough measures of disinfection, and by enforcing requisite structual improvements, the further progress of the outbreak, which has involved some 48 cases with 6 deaths, might have been prevented.

other scattered cases.

Besides the above outbreaks, there have been a few cases of enteric fever in Glebe Row and Mugger's Nook, Bedlington, localities where unsanitary conditions exist, such as untrapped gullies, foul yard surfaces, and leaky privies.

There have also been cases of enteric fever in about ten households scattered in different parts of the district, which seem to have had a different origin. They have occurred in the pit rows or in isolated houses; where, for the most part, there has not been any very obvious sanitary defect, except the general lack of surface cleanliness characteristic of the district. In seven out of the ten houses, the first case was a man or boy working in a coal pit, and five of the seven worked in the same, Cambois Colliery. In the outbreaks at Bedlington and Scotland Gate no such incidence was observed; in four households only out of 27 was the first patient a man or boy working in a colliery, and the majority of the patients were children.

It seems probable that the conditions of colliery labour may expose persons to the risk of contracting enteric fever. Exhausting labour in a high temperature and in confined air would act as predisposing causes. In a colliery underground there is no special place set apart as a privy, but the calls of nature have to be performed anywhere; and should a mild case of typhoid fever with diarrhœa chance to be present, infective exhalations might not only infect the air in the vicinity, but be conveyed by air currents to distant parts of the pit. As a rule, pitmen carry with them from home water or cold tea to drink when at work. Occasionally they may drink water from springs issuing in the colliery, but this does not appear to be the case at the Cambois Colliery, as the workings extend under the sea, and the water found in the pit is salt.

There is nothing to show that either water supply or milk supply were concerned in the spread of the fever.

Typhus cases at Bedlington.

Besides the above-mentioned cases of enteric fever there was in October and November a group of cases of typhus fever, so diagnosed by Dr. James Trotter of Bedlington, who has had frequent opportunities of becoming acquainted with typhus, and has suffered from it himself. He states that some of them were distinct cases of that disease, without diarrhœa, but with characteristic typhus rash, delirium, and congestion of the lungs and brain. Five households were invaded, in four of which the disease was confined to the initial case, and in the fifth two secondary cases occurred. The ages of the patients varied from 6 to 23 years; five of them were males and two females; two cases were fatal, both young men. The cases all occurred in Bedlington, but were not confined to one part of the town: two of the families invaded resided (10 doors apart) in a row of colliery houses at the north-western end of the town; another patient lodged in the High Street; another lived in Pit Row, a row of colliery houses near the south-eastern end of the town; and another in Coach Road, one of the streets in which, as previously mentioned, enteric fever has been prevalent. As regards date, four of the initial cases appear, as far as can be ascertained, to have begun between October 10th and 16th, and the one in Coach Road later, about the beginning of November. As regards previous occupation, one of the initial patients was a tailor's apprentice; another worked in a colliery; another was schoolmistress at the Roman Catholic day-school; the two others were children living at home, and one of them did not go to school. All the houses are in open situations, and in none of them was there any great overcrowding, nor, except at the one in Coach Road (which is on the edge of a slope down which the refuse is thrown), was there at either of them any special defect of drainage or refuse disposal. In no case could I learn of any channel of communication by which the disease might have been conveyed from one household to another, and the dates of commencement of the first four cases are so near as to render it improbable that either of them was contracted from any other. It seems more probable that they were contracted independently, but about the same time, from some unknown source, perhaps from a person who had had the disease unrecognised. In one instance there had been a case of scarlet fever about two months before in the same house; in two others there were cases of scarlet fever about the same time in neighbouring houses; and children recently recovered from scarlet fever had attended the Roman Catholic school shortly before the illness of the schoolmistress, who, however, had had that disease in early life. So far as I can judge from the symptoms reported, these cases of scarlet fever appear to have been correctly so described; and that disease, as shown by the preceding table, is rarely absent from the Bedlingtonshire district.

At the time of my visit in November and December measles was fatally prevalent, especially at Cambois, and the Cambois school had in consequence been closed.

Action of Sanitary Authority.

The action taken to prevent the spread of infectious disease in the Bedlingtonshire district has been very imperfect, perhaps owing partly to the Medical

Officer of Health having been absent from home during the summer through illness. The Medical Officer of Health gets occasional notices from other medical men of cases of infectious disease, but his information respecting them is far from complete. A system of notification of infectious cases at one time existed, the Local Board paying a fee for each certificate sent in, but it has fallen into disuse. The poor law medical relief lists rarely contain entries of infectious cases.

Houses known to be infected have at the close of the illness been fumigated with burning sulphur, but measures of cleansing and limewashing have not been enforced or carried out.

Measures of structural improvement for remedying nuisances have in some few instances, but not by any means in all, been enforced. Much yet remains to be done in this direction.

The Local Board possess a hospital for the isolation of infectious cases. It was originally a warehouse, was afterwards made into cottages, and is now fitted up as a hospital. It is situated on the edge of the Wansbeck, in the north of the district, and is not very central nor convenient of access, though the road to it has been improved by the Local Board. It has almost no ground belonging to it, having the tidal foreshore on three sides, while in front there is a right of way, little used, but which cannot be closed. There is therefore no space for a convalescent patient to take the air without the chance of coming into contact with people outside the hospital. The hospital contains 10 beds, which are in four wards, but as these all open out of a central landing, they could not safely be used for patients suffering from different diseases. The position of the waterclosets and mortuary is objectionable, being in the centre of the building, without any external light or ventilation. Drainage goes direct into the tidal estuary. The public tap water is laid on.

The hospital has been little used except on the occasion of an epidemic of small-pox in 1881. The existing staff is hardly sufficient, and it is said that a patient who was recently in the hospital could not be restrained from visiting persons outside. On this ground, and on account of other deficiencies in the administration, which is in the hands of the Inspector of Nuisances, the Medical Officer of Health recently declined to grant permission for the removal to the hospital of a patient who wished to go there.

There is said to be a good deal of prejudice in this district against going to a hospital, but probably the Bedlingtonshire fever hospital might have been made more use of if its advantages had been more pressed, and if its administration had been put on a better footing.

The Local Board have erected in their yard at Bedlington an apparatus for the disinfection by heat of articles of bedding and clothing. It consists of a brick oven, heated by a furnace under an iron grating in the floor. There are no means of ascertaining or regulating the heat attained in the interior, and it has several times happened that articles exposed for disinfection have been scorched and destroyed. On this account the apparatus has not been used since the outbreak of small-pox seven years ago. I have made to the Surveyor a suggestion which I hope will to some extent remedy its defects.

On December 12th, at the invitation of the Chairman, and by the direction of the Local Government Board, I attended a meeting of the Bedlingtonshire Urban Sanitary Authority, and conferred with them respecting the causes of the prevalence of fever in their district, and the measures to be taken to prevent it. I pointed out the importance of obtaining early and complete information of infectious cases, and suggested that the Authority should consider the expediency of adopting the Infectious Disease (Notification) Act, 1889. I also spoke of the importance of isolating the earliest cases of infectious disease with a view to preventing its further spread, and recommended that the hospital accommodation already provided, so far as it went, should be more utilised than it had been; the administration of the hospital, including the arrangements for nursing and medical attendance, being put on a satisfactory footing, and efforts being made to get people to make use of it in appropriate cases. I recommended, in addition to fumigation, the thorough cleansing and limewashing of houses or rooms in which cases of infectious disease had been, calling attention to the powers of the Authority under sections 46 and

120 of the Public Health Act, 1875. I asked for the Authority's attentive consideration of the circular recently issued by the President of the Local Government Board with respect to houses unfit for habitation, pointing out especially the power to deal with an "obstructive building," which renders other houses unwholesome by obstructing the access of light and air to them, and also their powers under section 90 of the Public Health Act to make byelaws for regulating houses which are sublet.

I recommended additional ventilation to the sewers, and the trapping by gully-traps of drain-inlets near to houses. I urged that the removal of refuse should be better carried out, and that a better form of privy should be adopted, recommending moveable galvanised iron pails, with separate tubs for the ashes, in place of the open middens, especially for places where a cart cannot be taken to the ashpit, or where the privy is unavoidably close to the house.

I also spoke of the importance to health of keeping the surface of the ground about houses clean and dry, and recommended the Authority to use such legal powers as they possess to secure the paving of yards and the repair of back streets, and the keeping of the surface of both yards and streets in a cleanly state.

The Authority promised to consider these recommendations.

H. FRANKLIN PARSONS.

December 27, 1889.